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Non-DII COE Installation Procedures (IP)
for the
Imagery API (MAIMG) Segment
of the
Tactical Environmental Support System Next Century
[TESS(NC)]
Meteorology and Oceanography (METOC) Database

Document Version 4.0

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1   SCOPE

1.1   Identification

These Installation Procedures (IP) describe a non-Defense Information Infrastructure (DII) Common Operating Environment (COE) installation of the Imagery Application Program Interface (API) (MAIMG) segment, Version 4.2 series, of the Tactical Environmental Support System Next Century [TESS(NC)] Meteorology and Oceanography (METOC) Database. The MAIMG segment provides APIs for the storage and retrieval of imagery data. This software is designed to run under the following configurations:

- A Sun computer running Solaris 2.6 without a DII COE system.

- DII COE release 3.1 on a Hewlett-Packard computer running HP-UX 10.20.

The instructions herein describe only the non-DII COE Solaris installation process.

1.2   System Overview

The software described in this document forms a portion of the METOC Database component of the TESS(NC) Program (Navy Integrated Tactical Environmental Subsystem (NITES) Version I). On 29 October 1996, the Oceanographer of the Navy issued a TESS Program Policy statement in letter 3140 Serial 961/6U570953, modifying the Program by calling for five seamless software versions that are DII COE compliant, preferably to level 5.

The five versions are:

- NITES Version I   The local data fusion center and principal METOC analysis and forecast system (TESS(NC))

- NITES Version II   The subsystem on the Joint Maritime Command Information System (JMCIS) or Global Command and Control System (GCCS) (NITES/Joint METOC Segment (JMS))

- NITES Version III   The unclassified aviation forecast, briefing, and display subsystem tailored to Naval METOC shore activities (currently satisfied by the Meteorological Integrated Data Display System (MIDDS))

- NITES Version IV   The Portable subsystem composed of independent PCs/workstations and modules for forecaster, satellite, communications, and Integrated Command, Control, Communications, Computer, and Intelligence Surveillance Reconnaissance (IC4ISR) functions (currently the Interim Mobile Oceanographic Support System (IMOSS))

- NITES Version V   Foreign Military Sales (currently satisfied by the Allied Environmental Support System (AESS))

NITES I acquires and assimilates various METOC data for use by US Navy and Marine Corps weather forecasters and tactical planners. NITES I provides these users with METOC data, products, and applications necessary to support the warfighter in tactical operations and decision making. NITES I provides METOC data and products to NITES I and II applications, as well as non-TESS(NC) systems requiring METOC data, in a heterogeneous, networked computing environment.

The TESS(NC) Concept of Operations and system architecture require that the METOC Database be distributed both in terms of application access to METOC data and products and in terms of physical location of the data repositories. The organizational structure of the database is influenced by these requirements, and the components of this distributed database are described below.

In accordance with DII COE database concepts, the METOC Database is composed of six DII COE-compliant *shared database* segments. Associated with each shared database segment is an API segment. The segments are arranged by data type as follows:

Data Type	**Data Segment**	**API Segment**
Grid Fields	MDGRID	MAGRID
Latitude-Longitude-Time (LLT) Observations	MDLLT	MALLT
Textual Observations and Bulletins	MDTXT	MATXT
Remotely Sensed Data	MDREM	MAREM
Imagery	MDIMG	MAIMG
Climatology Data	MDCLIM	MACLIM

A typical client-server installation is depicted in Figure 1-1. This shows the shared database segments residing on a DII COE database server, with a NITES I or II client machine hosting the API segments. Communication between API segments and shared database segments is accomplished over the network using ANSI-standard Structured Query Language (SQL).
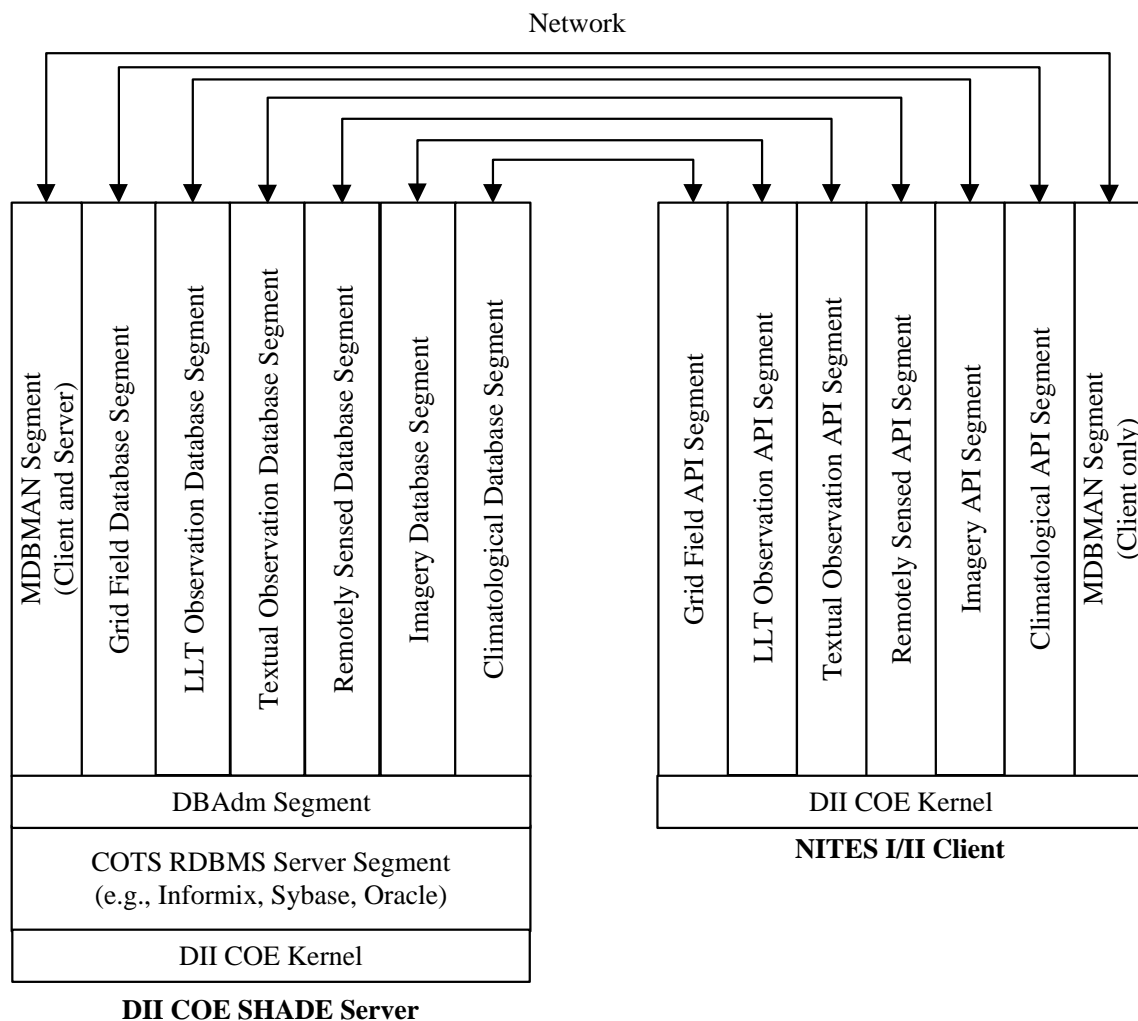
Network

| MDBMAN Segment (Client and Server) | Grid Field Database Segment | LLT Observation Database Segment | Textual Observation Database Segment | Remotely Sensed Database Segment | Imagery Database Segment | Climatological Database Segment | | Grid Field API Segment | LLT Observation API Segment | Textual Observation API Segment | Remotely Sensed API Segment | Imagery API Segment | Climatological API Segment | MDBMAN Segment (Client only) |

DBAdm Segment

COTS RDBMS Server Segment
(e.g., Informix, Sybase, Oracle)

DII COE Kernel

DII COE Kernel

NITES I/II Client

DII COE SHADE Server

Figure 1-1. TESS(NC) METOC Database Conceptual Organization

The APIs in the MAIMG segment deal with imagery products. Imagery products can be associated with a specific geographic point/area, as well as time. A number of different image formats are supported; they are NITF, MIF, GIF, TIFF, BMP, JPEG, XWD, XBM, PBM, MPEG, and Other.

2   REFERENCED DOCUMENTS

2.1   Government Documents

<u>STANDARDS</u>

MIL-STD-498
5 December 1994

Software Development and Documentation

<u>SPECIFICATIONS</u>

Unnumbered
5 December 1997

Performance Specification (PS) for the Tactical Environmental Support System/Next Century TESS(3)/NC (AN/UMK-3)

Unnumbered
30 September 1997

Software Requirements Specification for the Tactical Environmental Support System/Next Century [TESS(3)/NC] Meteorological and Oceanographic (METOC) Database, Space and Naval Warfare Systems Command, Environmental Systems Program Office (SPAWAR PMW-185), Washington, DC

<u>OTHER DOCUMENTS</u>

Unnumbered
30 September 1997

Database Design Description for the Tactical Environmental Support System/Next Century [TESS(3)/NC)] Meteorological and Oceanographic (METOC) Database, Space and Naval Warfare Systems Command, Environmental Systems Program Office (SPAWAR PMW-185), Washington, DC

DII.COE.DocReqs-5
29 April 1997

Defense Information Infrastructure (DII) Common Operating Environment (COE) Developer Documentation Requirements, Version 1.0

ipd4200maimgrmTES-10
9 October 1998

Application Program Interface Reference Manual (APIRM) for the METOC Imagery API (MAIMG) Segment of the Tactical Environmental Support System Next Century [TESS(NC)] Meteorology and Oceanography (METOC) Database

ipd4200maimgpmTES-10
9 October 1998

*Programming Manual (PM) for the METOC Imagery API
(MAIMG) Segment of the Tactical Environmental Support
System Next Century [TESS(NC)] Meteorology and
Oceanography (METOC) Database*

3   SYSTEM ENVIRONMENT

3.1   System Requirements

3.1.1   Hardware Requirements

The MAIMG software is hosted on a Sun Workstation.

The following configurations are recommended:

RAM: 128 MB minimum, 192 MB optimum
Disk Space: 2 GB
Swap Space: 300 MB

3.1.2   Operating System Requirements

Solaris 2.6

3.2   System and Site Preparations

3.2.1   System Configuration

The following software must be properly installed prior to loading the MAIMG software:

* Appropriate operating system (as described above)

* Informix Connect 7.24

MAIMG uses the following environment variables related to the Informix installation:

* INFORMIXSERVER Identifies the Informix server.

Any application wishing to use the MAIMG runtime libraries must add the MAIMG/bin tree to the library search path as seen below.

* setenv LD_LIBRARY_PATH <MAIMG_ROOT>MAIMG/bin:$LD_LIBRARY_PATH

    NOTE: MAIMG_ROOT is the path to where you extracted the tape's contents.

3.2.2   Operating System Preparation

Information needed to prepare the operating system is found in Solaris-supplied documentation.

3.2.3   Tape/Disk Preparation

The MAIMG software is delivered on a 4-mm DAT cartridge for the Sun Workstation hardware environment.

4 INSTALLATION INSTRUCTIONS

MAIMG is a component of the TESS(NC) METOC Database API Computer Software Configuration Item (CSCI). The following procedures describe the installation of the MAIMG software.

4.1 Installation

NOTE: Prior to segment installation, ensure that no existing MAIMG software is already installed on the target platform. If so, run the /usr/local/METOCAPPS_INFO/uninstall.MAIMG script to remove the existing version. The operator must be root to run the uninstall script.

4.1.1 Media Booting Procedures for Sun Workstation Systems

To prepare a tape for installation:

1. Insert the tape in the DAT drive.

2. Log in as root.

3. Extract the installation script from the tape using tar –xvf <tape device name>

4.1.2 Installation Procedure for Sun Workstation Systems

1. Invoke the extracted MAIMG install script

    ./install.MAIMG

2. Enter the NO-REWIND tape device name, or press the **ENTER** key to select the default value, displayed in the braces. The default value is */dev/rmt/0m*.

3. After the tape device name is entered, a description of the segment to be installed is displayed. If this is the correct segment enter '*y*' or press the ENTER key to accept the default value. If the description of the segment is not the segment to be installed, enter '*n*', and the installation procedure is stopped. The default value is 'y'.

4. If 'y' was entered in the above step, you will need to specify the path where the segment is to be installed. Remember to end the path with the name of the segment in capital letters (e.g., /home/MAIMG). The default value is /h/MAIMG.

5. If the directory specified above does not exist, the installation will create it for you if you choose. If you want the directory created, enter 'y' at the prompt, or select the default by pressing the **ENTER** key. If you don't want the installation script to create the directory, enter 'n' at the prompt. This will stop the installation process, and you will have to create the directory manually.

6. Once the directory has been created, you will be prompted to continue with the installation. If you wish to continue, either enter 'y' or select the default value by pressing the **ENTER** key. If you do not wish to continue the installation, enter 'n' at the prompt.

7. The script will proceed to install the segment to the directory that was specified. While the script is finishing up, it will create a new directory under */usr/local* called METOCAPPS_INFO. This is where it will place two files, an uninstall script and an info file about the segment. This completes the installation of the MAIMG segment.

4.2 Installation of Upgrades

Installation of upgrades will generally follow the same procedures listed above.

4.3 Installation Verification

Verification of proper installation may be done by running the testdrivers provided under the MAIMG/Integ/TestSuite subdirectory. A Readme is provided explaining testdrivers use.

4.4 Initializing the Software

This section is tailored out. No initialization of the software is required.

4.5 List of Changes and Enhancements

This section is tailored out. Discussion of MAIMG features may be found in the MAIMG API Reference Manual and Programming Manual, cited in Section 2.

4.6 Important Considerations

This section is tailored out.

5   NOTES

5.1   Glossary of Acronyms

AESS   Allied Environmental Support System

API   Application Program Interface

APIRM   API Reference Manual

COE   Common Operating Environment

CSCI   Computer Software Configuration Item

DII   Defense Information Infrastructure

FNMOC   Fleet Numerical Meteorology and Oceanography Center

GCCS   Global Command and Control System

IC4ISR   Integrated Command, Control, Communications, Computer, and Intelligence
                Surveillance Reconnaissance

IMOSS   Interim Mobil Oceanographic Support System

IP   Installation Procedures

JMCIS   Joint Maritime Command Information System

JMS   Joint METOC Segment

LLT   Latitude-Longitude-Time

MAIMG   Imagery API Segment of the TESS/NC METOC Database

MDIMG   Imagery Database Segment of the TESS/NC METOC Database

METOC   Meteorology and Oceanography

MIDDS   Meteorological Integrated Data Display System

NITES   Navy Integrated Tactical Environmental Subsystem

PM   Programming Manual

PS   Performance Specification

SQL   Structured Query Language

TESS(NC)   Tactical Environmental Support System Next Century